بسمـــ الله الرحمن الرحيمـــ

فريق عمل كل الطب

يُقدمـــ

سلسلة كتب د/أحمد موافي

In Capsule Series

تم الرفع بواسطة فريق عمل كل الطب

ALLTEB MEDICAL TEAM

مجمع ومنقول من أكثر من مصدر

جزى الله خيرا كل من ساهم في هذا العمل

لا تنسونا من صالح دعائكمـــ،،

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In Capsule Series

Internal Medicine

INFECTIONS

First edition

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INFECTIONS SCHEME

Etiology :

1. Causative organism:
2. Source of infection :
3. Mode of infection :

Clinical picture :

1. Incubation period : *Usually 1 – 2 weeks , but in cholera 1 – 5 days.*
2. Clinical manifestations.
3. Clinical variants.
4. Complications : *specific + ….itis*

Investigations :

1. **C**BC :
2. **C**ulture :
3. **S**erological tests.
4. **S**pecific :

Differential diagnosis :

1. Specific.
2. PUO (*Pyrexia of Unknown Origin*)

Treatment :

a) Prophylaxis :

i. Hygienic measures.

ii. Case finding.

iii. Isolation & Proper treatment.

iv. Chemo & immuno – prophylaxis : …….

b) Therapeutic :

i. General : Rest , light nutrient diet.

ii. Symptomatic : antipyretic.

iii. Specific : ……

iv. Treatment of complications.

TYPHOID

Etiology :

1. Causative organism: Salmonella typhi & paratyphi A & B
2. Source of infection : Patient , Carrier.
3. Mode of infection : Feco – oral transmission.

Clinical picture :

1. **Incubation period :** *1 – 2 weeks .*
2. **Clinical manifestations :**

1st week : 10 (*3 general + 3 respiratory + 3 GIT + rash*)

i. Fever : temperature rises in a **step ladder** manner until reaching 39 – 40° C by the end of the 1st week.

ii. Headache.

iii. **Relative bradycardia**.

iv. Sore throat.

v. Cough.

vi. Epistaxis.

vii. Coated tongue.

viii. Constipation.

ix. Spleen : palpable , soft & tender.

x. Rash (rose spot) : 10%

- Site : **T**runk.
- Duration : **T**ransient.

2nd week : (*The same as 1st but severe , no rash*)

- Fever : ↑ , Continuous
- Headache : ↓ with delirium.
- Tachycardia.
- Coated tongue .
- Splenic enlargement.
- Diarrhea may occur (pea soup).

3rd week : either

- Clinical manifestations start to improve. ***or***
- Complications occur.

4th week :

Convalescence begins (*but relapse may occur*)

3. Clinical variants :

- **A**febrile.
- **A**mbulatory.
- **A**bortive (mild)
- Grave : (severe)
- **S**udoral form : excessive **S**weating.
- Localized : **Pleuro** typhoid , **pneumo** typhoid , **meningo** typhoid.

4. Complications : *specific + …itis*

- GIT :
  - ✓ Intestinal hemorrhage , Perforation.
  - ✓ Peritonitis , Cholecystitis.

- CNS :
  - ✓ Meningitis , encephalitis , peripheral neuritis.
  - ✓ Typhoid state : delirium , convulsion.
- CVS : myocarditis.
- Chest : Epistaxis , bronchitis .
- Renal : Pyelonephritis , GN.
- Relapse.

Investigations :

1. **C**BC :
   - ESR : ↑
   - Leucopenia with relative lymphocytosis.
2. **C**ulture :
   - Blood culture : +ve in 1st week
   - Stool culture : +ve in 2nd week.
   - Urine culture : +ve in 3rd week.
3. **S**pecific : (***Widal test***)
   - It is +ve from 2nd week.
   - It is +ve when titre > 1/80

Differential diagnosis : PUO (*Pyrexia of Unknown Origin*)

Treatment :

a) Prophylaxis :

i. Hygienic measures.
ii. Case finding.
iii. Isolation & Proper treatment.
iv. Immuno-prophylaxis : TAB vaccine.
v. Treatment of carriers :
   - Ampicillin : **6** gm/d for **6** weeks.
   - Cholecystectomy : may be indicated in resistant cases.

b) Therapeutic :

i. General : Rest , light nutrient diet.

ii. Symptomatic : antipyretic.

iii. **Specific :** for 2 weeks 3 C

- **C**hloramphenicol : 50 mg/kg/d , orally
- **C**iprofloxacin : 750 mg/12h .
- **C**o-trimoxazole (septrin) : 2 tab / 12h.

iv. Treatment of complications.

- ✓ Perforation : surgical treatment.
- ✓ Hemorrhage : blood transfusion & anti-shock measures.

Side effects of ciprofloxacin:

- Hypersensitivity
- Photosensitivity
- Nephrotoxic
- Chondrolytic, reversible arthropathy (CI in pregnancy ,lactation, prepubertal children)
- Confusion, headache
- Crystallurea
- Distension GIT , super infection

BRUCELLOSIS

(malta fever , undulant fever)

Etiology :

1. Causative organism: Brucella , Gm –ve coccobacilli
2. Source of infection :
    - Brucella melitenesis : in goats
    - Brucella abortus : in cows
    - Brucella suis : in pigs.
3. Mode of infection :
    - Drinking contaminated milk.
    - Dealing with infected animals : farmers , veterinarian.

Clinical picture :

1. **Incubation period :** *1 – 2 weeks .*
2. **Clinical manifestations :** *mnemonic* : **br**u**c**e**ll**o**s**i**s**
    - **B**one & muscle pain.
    - **R**elapsing fever : fever lasts for 10 days then apyrexia for 10 days , then relapse and so on.
    - **C**onstipation , nausea , vomiting.
    - **L**ymph node enlargement.
    - **L**iver : enlarged , tender.
    - **S**pleen : enlarged.
    - **S**weating.

3. **Clinical variants :**
   - Intermittent.
   - Remittent.
   - Continuous .
   - Mild.
   - Malignant.
   - Localized brucellosis e.g. bone , testis.
4. **Complications :**
   - Relapse.
   - Infective endocarditis. يبوظ القلب و يمنع المشاعر
   - Orchitis. يمنع اللي بالي بالك
   - Paraplagia due to transverse myelitis. يجيبلك شلل
   - Abortion. وبعد كل ده لو حصل حاجة .....

Investigations :

1. **C**BC : Lymphocytosis , ↑ ESR
2. **C**ulture : blood culture +ve during fever spike.
3. **S**erological tests : Brucella agglutination test.

Differential diagnosis :

1. Fever with lymphadenopathy.
2. PUO (*Pyrexia of Unknown Origin*)

Treatment :

a) **Prophylaxis :** Hygienic measures e.g. Pasteurization of milk.

b) **Therapeutic :**

i. General : Rest , light nutrient diet.

ii. Symptomatic : antipyretic & analgesics.

iii. Specific :

- Tetracycline : 500 mg/6h for 6 weeks. or
- Doxycyclin : 200 mg/d for 6 weeks. or
- Septrin : 2 tab /12h for 6 weeks

Plus

- Streptomycin : 1 gm/d IM for 2 weeks or
- Rifamicin : 600 mg/12h .

iv. Treatment of complications.

MALARIA

Etiology :

1. Causative organism: *Four species affect mankind* :

   Plasmodium vivax , ovale , malariae & falciparum.

   P. falciparum is potentially lethal , the others are usually benign.

2. Source of infection : Patients.

3. Mode of infection : Bite of female anopheles mosquito.

Life cycle :

1) **Sexual cycle :** in female mosquito. (*exogenous phase*)

   ♀ mosquito picks up gametocytes from infected individual → sporzites → migrate to salivary gland to be injected into man.

2) **Asexual cycle :** in man (*endogenous phase*)

   i. Exo-erythrocytic stage : infected mosquito injects sporozytes → which migrate to **liver** where they form *merozites* → Merozites are released to blood stream.

   ii. Erythrocytic stage :

   Merozites invade the **RBCs** → signet ring form → Trophozites → rupture of RBCs releasing merozites which can infect other RBCs.

Clinical picture :

1. **Incubation period :** *1 – 2 weeks.*

2. **Clinical manifestations :**

   i. **Benign Tertian malaria :** (infection with P. *vivax* & *ovale*)

   - The attacks occur every 48 hours.
   - The attack passes into 3 stages :

     Cold stage , Hot stage & Sweating stage.

a) Cold stage : (lasts for 1 hour)

- Acute onset of sense of coldness & rigor.
- Rapid rise of temperature to 39 – 40 C
- Vomiting & polyuria.

b) Hot stage : (lasts for 8 hours)

- **H**otness & flushed face.
- **H**eadache.
- **H**igh temperature.

c) Sweating stage : (lasts for 3 hours)

- **S**weating with rapid fall of temperature with no or mild vomiting.
- **S**pleen is enlarged after 2 weeks.

ii. **Quartan malaria :** (infection with P.*malariae*)

Similar to benign tertian malaria but the attacks occur every 72 hours.

iii. **Malignant malaria :** (infection with P. *falciparum*)

a) Ordinary tertian type :

Clinical manifestations are similar to benign tertian malaria but :

Hot stage is prolonged.

Sweating stage : ↓

Splenomegaly occurs within less than 1 week.

b) **Pernicious type :** (complicated – fatal)

i. **A**lgid malaria : Abdominal pain , shock , hypothermia.

ii. **B**ilious remittent fever : Jaundice , vomiting , gastric pain.

iii. **C**erebral malaria : Headache , Hyperpyrexia , Focal neurological disorders , Psychosis.

iv. **D**ysenteric type : dysentery.

c) <u>Blackwater fever</u> :

- Blackwater fever is a complication of malaria characterized by intravascular hemolysis, hemoglobinuria and **<u>acute renal failure</u>**.
- Quinine – *anti-malarial drug* – may play a role in triggering the condition.
- Most probably autoimmune ?
- **Clinical picture :** 👌
  i. Hemolysis : Fever , rigor , anemia , jaundice.
  ii. Hemoglobinuria : dark red or black urine (*hence the name*) , loin pain.
  iii. **Acute renal failure** : due to massive intravascular hemolysis

3. Complications of malaria :

- Malignant malaria : (complications of P. falciparum)
  i. Pernicious malaria : ABCD
  ii. Blackwater fever : Hemolytic anemia , **acute renal failure.**
- Relapse : in P. ovale & vivax. (<u>*No relapse in P falciparum*</u>)
- Rupture of spleen.
- Tropical splenomegaly syndrome.
- Malarial hepatitis syndrome (easily mistaken clinically for viral hepatitis)
- Nephrotic syndrome : especially in quartan malaria (P. *malariae*)

Investigations :

1. Detection of the parasite : blood film , bone marrow aspirate.
2. **C**BC : Features of hemolytic anemia. Leucocytosis during the attack.
3. **S**erological tests : to detect antibodies.
4. **Therapeutic test**: fever responds to anti-malarial drugs.
5. **Investigations for complications** : e.g. Acute renal failure.

Differential diagnosis :

1. Fever with rigor.
2. PUO (*Pyrexia of Unknown Origin*)

Treatment :

a) Prophylaxis :

i. Hygienic measures (Anti-mosquto measures) :

Insecticides , bed nets , repellants.

ii. Chemo prophylaxis : when travelling to endemic areas.

- Chloroquine : 500 mg/week, one week before arriving and 4 weeks after leaving
- Others : primaquine , mefloquine , proguanil.

b) Therapeutic :

Active malaria infection with P. falciparum is a medical emergency requiring hospitalization. Infection with P. vivax, P. ovale or P. malariae can often be treated on an outpatient basis.

i. General : Rest , light nutrient diet.

ii. Symptomatic : antipyretic.

iii. Specific : (*Anti-malarial drugs*)

a) Tissue schizonticides (*against exoerythrocytic form*) :

for preventing relapse e.g.

- **P**rimaquine.
- **P**yrimethamine.

b) Blood schizonticides :

These drugs act on the *erythrocytic forms* of the parasite and terminate clinical attacks of malaria. These are the most important drugs in anti malarial chemotherapy e.g.

- **Chloroquine** :
  - Dose : 4 tab at first (tab = 250 mg) , then 2 tab after 12 h then 2 tab/d for 2 successive days.
  - Side effects : **C**orneal opacity , GIT irritation , Itching.
  - Contra indications: Chloroquine should be used with caution in patients with hepatic disease.
- **Quinine** :

  Dose : 650 mg t.d.s. for 1 week

  Side effects : Cinconism (nausea , vomiting , tinnitus) , Hemolytic anemia.
- **Mefloquine**.
- **Fansidar** (*compination of pyrimethamine & sulphadoxine*)

  3 tab as a single dose.

iv. **Treatment of complications :** e.g. blackwater fever

- **A**cute renal failure : dialysis.
- **B**lood transfusion.
- **C**ortisone

Throughout nature, infection without disease is the rule rather than the exception.

Rene Dubos

INFECTIOUS MONONUCLEOSIS

(Glandular fever)

Etiology :

1. Causative organism: **Epstein – Barr virus**.
2. Source of infection : Carriers , Patients.
3. Mode of infection : Kissing , droplets infections.

Clinical picture :

1. **Incubation period** : *1 – 2 weeks.*
2. **Clinical manifestations** :
    - Asymptomatic.
    - Fatigue.
    - Sore throat , tonsillitis . **pharyngitis**.
    - **Fever** : is usually present and is low grade.
    - **Enlarged LN** , spleen & liver.
    - Transient rash on ampicillin therapy.
    - Periorbital edema.
3. **Clinical variants :**
    - Glandular type.
    - Aglandular type : especially in elderly patients.
    - Febrile type : with high fever.
    - Ictric type : with jaundice , especially in elderly patient.
    - Encephalitic type.

4. **Complications** :
    - Liver : hepatitis.
    - Spleen : Rupture.
    - Blood : Autoimmune hemolytic anemia , thrombocytopenia.
    - CNS : Meningitis, encephalitis, transverse myelitis , Guillain-Barré syndrome. EBV infection has also been proposed as a risk factor for the development of *multiple sclerosis* but this has not been confirmed.

Investigations :

1. **C**BC :lymphocytosis & monocytosis .
2. **C**ulture and BM examination.
3. **S**erological tests: anti EBV antibodies.
4. **S**pecific : monospot test(antibodies in human serum ⇨ agglutinate horse RBCS)

Differential diagnosis :

1. Specific.
2. PUO (*Pyrexia of Unknown Origin*)

Treatment :

a) Prophylaxis :

i. Hygienic measures.
ii. Case finding.
iii. Isolation & Proper treatment.
iv. Chemo & immuno – prophylaxis :

b) Therapeutic :

i. General : Rest , light nutrient diet.
ii. Symptomatic : antipyretic.
iii. Specific : no specific ttt.
iv. Treatment of complications.

FEVER OF UNKNOWN ORIGEN (FUO)

Definition :

Persisting elevation of body temperature over 38.5 for at least 2 weeks without diagnosis after proper history taking ,physical examination & routine investigations .

Causes :

Infections (30%)

Bacterial:

- TB
- IE
- Typhoid fever
- Brucellosis
- Lung abscess
- Pyelonephritis
- Septic focus (prostatitis)

Viral :

- EBV – CMV – HIV – Hepatitis

Protozoa :

- Malaria
- Amoebiasis

Types of Fever

Sustained fever: daily fluctuations less than 1 c°

Remittent fever: daily fluctuations more than 1 c°

Hectic fever: temp. falls to normal level once or more during the day.

Relapsing fever: short days of fever intercepted by short days of normal temp.

Normal body temp. is 36.5 – 37.3 c°

Malignancy (20%)

hematologic :

- Lymphoma
- Leukemia

Non hematologic :

- Hypernephroma
- Hepatoma
- Bronchogenic carcinoma

Collagen disease (10%)

- Rheumatic fever , PAN , SLE , RA

Others (20%)

- Sarcoidosis.
- Pulmonary embolism.
- Hemolysis.
- Crohn's disease.
- Cerebral hemorrhage.
- Atropine.

Undiagnosed (20%)

Most will resolve spontaneously

Investigations :

1. ***Lab :***
   - ESR ↑: TB , collagen, malignancy.
   - CBC: leukemia , anemia.
   - Blood culture.
   - Urine & stool culture.
   - Liver , kidney function test.
   - Serology → widal test , ANA &Anti DNA.
2. ***Imaging :***
   - x-ray: chest , bone.
   - U/S :Heart , Abdomen , Pelvis.
3. ***Endoscopy :***
   - upper GIT & lower GIT.
4. ***Biopsy :***
   - LN , Bone marrow , liver.
5. ***Skin test :***
   - tuberculin test.
6. ***Therapeutic tests :***
   - Mitronidazole (amoeba)
   - Chloroquine (malaria)
   - Aspirin (RF)

FEVER WITH RASH

- Exanthemata :
  - Measles
  - German measles
  - Chickenpox
  - Scarlet fever
- Rheumatic fever
- Infective endocarditis
- Infectious mononucleosis
- Meningitis
- Typhoid
- Leukemia
- SLE
- Septicemia
- Skin disease
- Secondary syphilis
- Drug allergy

FEVER WITH RELATIVE BRADYCARDIA

A. Specific fevers:

- Viral infection eg , influenza , viral hepatitis , mumps .
- Typhoid fever
- Mycoplasmal pneumonia

B. CNS lesions with increased ICT:

- Meningitis
- Encephalitis
- Brain abscess
- Intracranial hemorrhage eg , subarachnoid & pontine hemorrhage.

FEVER WITH SORE THROAT

1. **Local throat diseases:**
    - Tonsillitis
    - Pharyngitis
    - Vincent's angina
    - Pharyngeal abscess
    - Pharyngeal ulcers
2. **Specific fevers:**
    - Diphtheria
    - Infectious mononucleosis
    - Scarlet fever
3. **Hematological diseases:**
    - Leukemia
    - Neutropenia eg. in aplastic anemia

FEVER WITH RIGORS

- Malaria.
- Hemolytic crisis.
- Blood transfusion (hemolytic or pyogenic reaction)
- Military TB
- Septicemia.
- IE.
- Cholecystitis.
- Cholangitis.
- Liver abscess.
- Subpheneric abscess.
- Pyelonephritis.
- Perinephric abscess.
- Appendicitis.
- Osteomyelitis.
- Prostatitis.
- Puerperal sepsis.
- Salpengitis.

TREATMENT OF ANCYLOSTOMA – ASCARIS – ENTOROBIUS VERM.

1. **Flubendazole or Mebendazole:** Drug of choice (100 mg. 1x2x3)
2. **Thiabendazole:** 25 mg/kg/day for 2 days
3. **Pyrantel Pamoate:** 11 mg/ kg single dose
4. **Levamisole:** 150 mg single dose

NB in case of Entorobius verm. ttt. of all family members at the same time.

TREATMENT OF BILHARZIASIS

1. **Praziquantel:**
   Drug of choice of all types.

Mechanism of action : Ca influx into the worm ➔ marked contraction & spastic paralysis of the worm.
Dose: 40mg / kg oral single dose.
S/E: headache, abdominal pain , nausea, vomiting, pruritis, fever, elevation of liver enzymes.

2. **Oxamniquine.**
3. **Metrifonate.**
4. **Niridazole.**

TREATMENT OF GIARDIA

1. **Metronidazole:** 2gm single dose for 2 successive days.
2. **Tinidazole:** 2gm single dose.

This is *only the Drug treatment* take care there are other treatment items like general care, symptomatic ttt., and ttt. of complications.☺